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Dawood Mamoon

Institute of Social Studies

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# How May International Trade affect Poverty in a Developing Country Setup? The Inequality Channel

**Dawood Mamoon<sup>1</sup>**

Institute of Social studies (ISS)  
PO Box 29776  
2502 LT The Hague, The Netherlands  
[Mamoon@iss.nl](mailto:Mamoon@iss.nl)

## **Abstract:**

Recently there has been an influx of literature which tries to find out relationship between trade and poverty. Right is of the view that more international trade is good for the poor whereas left is quite skeptical of pro poor effects of trade. The paper provides a comprehensive review of recent literature on the topic in order to reach some neutral grounds. The paper finds out that though trade might carry positive affects for the poor in developing countries through growth, such gains are not equally distributed among the rich and the poor. The paper identifies at least 8 different effects of international trade which result in unequal outcomes and thus defies Heckscher-Ohlin-Samuelson theorem in a developing country set up. Since per decomposition, poverty is affected by growth or inequality, evidence of unequal gains from trade does imply that the relationship between trade and poverty is not as simple as the right seems to suggest. To this effect, the paper calls for more empirical work on trade and inequality especially as single country case studies.

*Keywords: Economic Integration, Welfare and Poverty*

*J.E.L Classification numbers: F15, I30*

## **1. Introduction:**

To date, most of the countries in our global village have embraced or initiated processes of liberalization. The idea is to follow neo-classical paradigm of free markets in order to achieve variety of economic as well as social objectives, as free markets are assumed to be one of the key catalysts for growth and its determinants. This belief in the efficacy of free markets has also been the basic guiding principle of contemporary globalization.

Though globalization seems to promise a lot for both North and South, poor and rich, developed and underdeveloped, empowered and impoverished, such promises are yet to see the light of the day especially for those who live in underdeveloped, destitute and distant lands in the South. The underprivileged Southern peripheries question the fairness of ‘the globalization’ which is propagated by the proponents of free markets

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<sup>1</sup> The author is grateful to Mansoob Murshed and Karel Jansen for useful comments on a previous version.

and also justifies the stand of those who believe that globalization is nothing but a Northern tool to exploit and marginalize the South.

Since it is tempting to get carried away with the rhetoric for or against globalization, the issue needs to be looked upon with objectivity and care. As an economist, I am bound to peer into the issue through the prism of economics rather than environment, sociology or anthropology. To economists the processes of contemporary globalization are at best captured by the movements in international trade and financial flows that have taken place between different countries and regions in the last few decades. I will restrict myself to international trade in this paper.

The first relevant question arises how economists view the notion of 'free trade'? Well at least there is a consensus among the bests of both left<sup>2</sup> and right that openness to international trade is imperative for economic development. Many studies have shown that trade is not only the engine of growth but it also sustains it (e.g. Srinivasan and Bhagwati, 2001; Dollar and Kraay, 2004; Mamoon and Murshed, 2005a). It is also believed by the proponents of 'free markets' that the countries, developing as well as developed ones, who have opened up their economies more, have achieved better economic performance. For example, developing countries that opened up in the 1990s witnessed faster growth than the rich countries and hence are catching up. On the other hand it is asserted that the non globalizing part of the developing world is falling further and further behind (Dollar and Kraay, 2004). The accession to global economy has indeed brought prosperity to different areas in the world (Sen, 2002). In contrast with the general perception<sup>3</sup>, there is also some evidence that world poverty and inequality is declining. Sala-i-Martin (2002) in his much publicized paper, has shown the fraction of the world's population below the poverty line (defined as an income of \$2 a day in constant 1985 dollars) has fallen to 18% in 1998 from 44% in 1970, where as overall inequality (Gini-coefficient)<sup>4</sup> has fallen to 0.63 in 1998 from 0.66 in 1970<sup>5</sup>.

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<sup>2</sup> One of the prominent economists known for his leftist stance on the process of Globalisation, Dani Rodrik, does seem to accept in his recent paper (see Rodriguez and Rodrik, 2000) that trade liberalisation and growth are positively related. However he also emphasizes that it should not be considered as a substitute for other development strategy/ies.

<sup>3</sup> See for example Aisbett (2003) for detailed commentary about the basis of general perception among public that global poverty or inequality is on the rise.

<sup>4</sup> There are three categories of Gini-coefficients. Category 1 inequality takes into account per-capita incomes of the respective countries. In category 2, the per capita incomes are weighted by population size. However category 3 inequality takes into account within country inequalities, which makes it superior to the former categories. Sala-i-Martin (2002) employs category 3 measure of inequality. For a brief commentary on the three categories of inequality see Murshed (2003).

<sup>5</sup> The paper also estimate other popular indexes of inequality i.e., the variance of log-income, two of Atkinson's indexes, the mean logarithmic deviation, The Theil Index and the coefficient of variation. All indexes show the same decreasing trends in inequality over the selected time period. However, Milanovic (2002) argued that Sala-i-Martin made many oversimplifying assumptions and failed to address two basic data problems (too few data to derive countries' income distributions, and sparseness of such data in time). According to Milanovic, Sala-i-Martin ended up by producing a population-weighted inter-national distribution of income augmented by a constant shift parameter and not a distribution of income among world citizens which has made his results dubious. Additionally in his recent paper Milanovic (2003) showed that openness leads to regional inequality for populous regions with some getting ahead and others falling behind.

Recently, Dollar and Kraay (2004)<sup>6</sup> have also shown that openness to international trade in particular appears to benefit poor people as much as everyone else. The study pointed out the experience of countries in the Asia and Pacific region (i.e., the Republic of Korea, Singapore, and Taipei, China) which contains a broad range of examples concerning both trade liberalization and poverty reduction. The paper also implied that reforms on average have had little effect on income distribution. Other recent cross country studies also emphasized opening up as necessary policy tool for poverty alleviation (i.e., Anderson, 1999).

All in all proponents of globalization are confident that free trade carries significant pro poor growth effects<sup>7</sup>. However, the increasing concentration of world poverty in some regions of the world (e.g. Sub Saharan Africa, transition economies of central Asia) and instances of rise in spatial inequality<sup>8</sup> in developing countries which have opened up (i.e. China, Vietnam, Mexico, Brazil, Chile, Columbia and Venezuela etc) implies that processes of growth needs a careful evaluation and we have to exhaust all possible channels through which poverty is affected. For example, trade might very well be good for poor because it is good for growth but if trade amplifies inequalities between regions, countries or income groups, it cannot claim to be the harbinger of welfare generation because income distribution is no less a vital determinant of poverty than growth itself.

Many studies have tried to capture the relationship between trade liberalization and income inequality. The right is of the view that liberalization does not carry any significant effects on income distribution and at best the relationship is of neutral nature (Dollar and Kraay, 2004). However there is ample empirical evidence which suggest otherwise. For example, Behrman et al (2001) noticed that in 7 out of 18 Latin American countries that initiated market reforms in the mid 1980s, inequality has actually increased in recent times. The rest of the economies in their sample showed that inequality was approximately same in 1990s to the levels of 1980s. Jayasuriya (2002), though accepting that liberalization has tended to reduce consumption poverty in South Asia, also joins the critics<sup>9</sup> of Dollar and Kraay's findings concerning neutral distributional effects of liberalization.

Another fact, which undermines the results of Dollar and Kraay, is that cross country analysis has long been the source of criticism by many on the basis that such analysis can only capture average effects. The embedded drawback of such studies are at best summarized by Sirinivasan and Bhagwati (2002), "*...The choice of period, of the sample, and of proxies, will often imply many effective degrees of freedom where one might almost get what one wants if one tries hard enough!*" On the similar lines, Dollar and Kraay (2004) have been accused of sample selection bias. For example,

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<sup>6</sup> Dollar and Kraay (2004) is primarily an extension of their earlier work (i.e., Dollar and Kraay 2000) which focused on the Poverty impacts of Growth.

<sup>7</sup> Srinivasam and Bhagwati (2002) mention that high growth rates achieved by China and India are partly due to their opening up in 80s and 90s. The same period is also associated with a decline of incidence of poverty from 28% in 1978 to 9% in 1998 in China and from 51% in 1978 to 27% in 2000 in India respectively.

<sup>8</sup> Salai-i-Martin (2002) in his popular paper accept that despite decreasing trends of Global poverty and inequality levels, there is some increase in within-country disparities.

<sup>9</sup> Many studies have criticized the results of Dollar and kraay by raising the apparent weaknesses their methodology and variable choice suffered from.. i.e see Ravallion (2003), Amann et al (2002), Srinivasam and Bhagwati (2002)

Murshed (2003) pointed out that the Dollar and Kraay only considered successful globalizers, mainly from Asia, in their analysis and excluded the unsuccessful globalizers from their sample in order to capture trade and poverty relationships.

Srinivasan and Bhagwati(2001), although admitting that cross country analysis does provide some important information, advocates more empirical evidence based on country specific case studies to get a more clear and detailed picture regarding distributional effects of reforms on the individual countries.

To this effect, much recently, many single country case studies have been undertaken on the subject and the evidence suggests that the distribution of the positive effects of liberalization is some what skewed towards urban households rather than rural, and wealthy households rather than poor.<sup>10</sup> It is further noticed in many studies<sup>11</sup> that liberalization process in many developing countries seems to be biased against low-skilled labor. The empirical verification in this regard comes mainly from Latin American region primarily because most of the economies in the region undertook rigorous reform policies in the mid 1980s as part of their structural adjustment plans and also witnessed grappling inequality in Post reform periods. Ligovini et al (2001) found out that inequality in Mexico rose sharply between 1984 and 1994 and rising returns to skill labor accounted for 20 percent of the increase in the inequality in household per capita income. Similarly, Hanson and Harrison (1999) found that the reduction in tariffs and the elimination in import licenses account for 23 percent increase in the relative wages of skilled labor over the period of 1986-1990 thus providing evidence for the role liberalization played in rising inequality in Mexico. Other country studies on Brazil, Chile, Colombia and Venezuela, also show that skilled workers received increased premiums after liberalization when compared to their unskilled counterparts (World Bank, 2001a).

Such empirical evidence contradicts the basic trade theory which suggests that trade liberalization would result in an increase in demand for low-skilled in a developing country, thereby improving the relative earnings of this group compared with the more skilled. The evidence further feeds the fears of Ravallion (2003), who coined the possibility that openness to trade can lead to the demand for relatively skilled labor, which tends to be more inequitably distributed in poor countries than rich ones. He also proposed caution regarding the results of David and Dollar (2004) paper concerning neutral inequality effects of trade reform on the base of latter's methodology and referred to his own empirical work which found that reform process do carry unequal distributional effects.

## **2. International Trade and Inequality: Why the Debate is Important?**

As mentioned earlier there is not much dispute among economists regarding the benefits of increased international trade. No doubt increased trade leads to more efficient economic outcomes through augmented market access and the followed processes of learning by doing. On the one hand international trade is one of the most important policy tools for economic growth, whereas on the other hand growth is not

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<sup>10</sup> see Chen and Ravallion (2003), Cockburn (2001), Friedman(2000), Lofgren (1999).

<sup>11</sup> Behrman et al (2001) noticed that 7 out of 18 Latin American countries that initiated market reforms in the mid 1980s inequality have increased in recent times. Where as most Latin American economies in their sample showed the inequality was approximately same in 1990s to the levels of 1980s.

only one of the most commonly targeted macroeconomic phenomenon but also considered to be the barometer of economic well-being.

Growth has been one of the key policy objectives for any economy at the times when world was obsessed with Structural adjustment Plans or now, when the world has switched its attention to newly improvised Poverty Reduction Strategies.

Apparently, the end objective of any economic policy devised to date is to generate welfare and wellbeing of the public and same is true for growth which must also fall in the category of welfare generating strategies since the idea has always been that at the end of the day growth should be good for poor (see Mamoon, 2004). It makes sense because in economics poverty decomposition identifies two channels through which poverty is affected. One is the growth channel and the other is inequality. Growth is good for poor whereas inequality is not good. Since growth sometimes puts an upward pressure on inequality, the more relevant question here is how to align growth with poverty alleviation? The simple answer is to sterilize any adverse distributional effects of growth to make it a 'chaste pro poor experience'. However as simple as it looks, the answer is much more complex and tricky when put into practice.

Recently World Bank realizes this fact: *"For a given rate of growth, the extent of poverty reduction depends on how the distribution of income changes with growth and on initial inequalities in income, assets and access to opportunities that allow poor people to share in growth .....how growth affects poverty depends on how the additional income generated by growth is distributed within a country"* (2001b:52).

As mentioned before, international trade is one of the key determinants of growth and thus it is considered to be key policy tool for alleviating poverty. However, there is increasing evidence that more trade has been associated with more unequal outcomes through out the integrating South. Though poverty is decreasing in China and India, the rural and urban divide is rising in these so-called success stories of globalization. The persistent qualitative inequalities in the South are transformed into income inequalities when only more affluent sector or group is benefited from the international flow of goods and services. For example, prevalent educational inequalities cause rise in wage inequality in the South, where rich or urban are more educated or skilled than poor or rural, as it opens up (Mamoon and Murshed, 2005b).

Additionally, inequality is not expected to be good for growth itself (Aghion et al 1999; Kakwani et al, 2000). World Bank supports the notion that lower inequality can increase efficiency and economic growth through a variety of channels. The report says: *".....policies to improve the distribution of income and assets can have a double benefit – by increasing growth and by increasing the share of growth that accrues to poor people"* (2001b:56).

Thus, any adverse distributional effects arising from opening up becomes all more important because it can also hamper the growth potential of the economy. This concern is very eloquently summarized in Slaughter (2000a) as he pointed out that many developing countries have recently seen income inequality rise, not fall, subsequent to trade and FDI liberalization: *"The clear policy message is that developing country policy makers should not regard liberalization as a sure-fire*

*poverty reduction program –of course, with the caveat that rising inequality can coexist with declines in absolute poverty”.*

In the light of above examples, it becomes imperative to discern whether the observed patterns of inequality offset any pro poor dynamic benefits of trade liberalization since pro-poor growth can only occur when people invest in productive activities and the value added of which accrues to poor households more than to non-poor households. It is crucial to understand the relationship between international trade and inequality in a developing country context in much detail to understand why exposure to foreign markets tends to benefit certain segments of the society which are more affluent than the rest; or why trade creates disparities in factor incomes by favoring certain economic activities (i.e., manufacturing) over others (i.e., agriculture) in a developing economy?

### **3. International Trade and Uneven Development: A Spiral:**

There can be several reasons why liberalized trade carries an asymmetrical effect. The economic literature has long been contemplating over it by proposing models and frameworks which incorporate the possibilities of uneven development within regions due to international trade. Important point to note here is that this paper is primarily concerned with intra state disparities as an out come of exposure to free trade and not inter state disparities.

In this section, we try to explain how uneven development in the South takes place at individual level? To this effect, we utilize the model proposed by Fischer (2001), who developed a general framework to study the effects of trade liberalization on income distribution. He argued that liberalization leads to capital gains or losses, which in turn affect inequality. According to his model, an economic agent's income has two components: wages, which are equal for all agents and wealth, which is unequally distributed. Wages are the reward to unskilled labor. Whereas, wealth corresponds to the value of assets, which can include holdings of capital, human capital, land, natural resources or any other factors of production. Agents in a particular group receive unequal bequests from their parents. A reduction in group inequality leads to the reduction in the inequality of bequests to the descendants. Thus according to Fischer, changes in inequality are time sensitive. An increase in wages relative to wealth reduces inequality by increasing the importance of the component of income that is equitably distributed. This model quite amicably captures the developing country dynamics because in the developing countries income of unskilled labor is more equitably distributed (Ravallion, 2003) and any increase in income of unskilled would mean a fall in inequality. Though, Fisher's framework suggests that the long run evolution of inequality depends only on the effect of trade liberalization on interest rates, in the short run, inequality very much depends on wage wealth ratio and the distribution of inheritance between the groups:

Assume that in an economy, agents earn wages,  $w_t$  by supplying labor inelastically to the market. Also presume that labor is homogenous so that the wage is same for every agent. In other words  $w_t$  is the reward for unskilled labor. At the end of their lives, each agent provides a bequest to her sole descendent so that the agents are bestowed with wealth at birth. Since bequests are unevenly distributed among agents, wealth is

a measure of inequality. This is typically inline with a developing country context where people start their lives as unequal stake holders because each individual's income is partly determined by his level of education, his exposure and access to recourses which are unevenly distributed among the population partly because they are the outcome of unequal bequests or investments made by their parents through their own equal/ unequal wealth/ bequest. Thus bequest would be the most important part of any agent's wealth and determines his status in the society<sup>12</sup>. Galor and Tsiddon (1996) also supported the above argument by suggesting that the initial distributions of income determine both aggregate income and distribution of human capital- and therefore earnings.

Let the total income of any agent be the sum of wages,  $w_t$  and bequests/wealth,  $b_t$ , such that  $w_t + b_t = y_t$

Each agent divides her income between consumption and the amount being saved to make bequest. There is a continuum of agents in each generation. Agents have different propensities for consumption and receive different inheritances from their ancestors. This implies that inequality in the income of agents in a society also depend on the inequality in initial wealth or inheritance. The ones with more affluent inheritance shall likely to be affluent in their lives and vice versa. Trade liberalization can affect the level of inequality if it affects the assets of agents. A liberalization process, which favors a certain segment of the society, can lead to greater inequality if it increases the share of bequests in total wealth. This is because inheritance is dispersed unequally among individuals.

Assume that in period t-1, the economy received a shock due to trade liberalization, whereas, the physical allocation of assets through inheritance has already been made. The value of bequests changes in the liberalized scenario<sup>13</sup>. Consider the income of an agent z with and without shock (the primes denote variables that have changed):

$$\begin{aligned} w_t + b_t(z) &= y_t(z) \\ w'_t + b'_t(z) &= y'_t(z), \quad \forall z \in [0, L]. \end{aligned} \quad (1)$$

whereas  $w_t$  is the wages for the unskilled labour

Assuming all agents invest their wealth in the different assets in the same proportions, a change in the price of any asset will affect all bequests in the same proportion. Denoting by  $B_t$  the aggregate value of the bequests:

$$B_t = \int_0^L b_t(z) dz \quad (2)$$

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<sup>12</sup> Though there might be some cases when individuals do break the class barrier by becoming rich or poor than they have started out, such cases would not be very common in a typical developing country set up.

<sup>13</sup> The change of bequest can be due to technological spill over affecting the labor productivity thus increasing returns to human capital.



Denote the ratio of aggregate wealth with the shock to aggregate wealth without the shock by

$$V'_t = B'_t / B_t.$$

If there is no shock,  $V'_t = B'_t / B_t = 1$ . Then eq. (1) can be written

$$\begin{aligned} w_t + b_t(z)v_t &= y_t(z) \\ w'_t + b'_t(z)v'_t &= y'_t(z), \quad \forall z \in [0, L]. \end{aligned} \quad (3)$$

This means that the original stocks of assets are scaled by the percentage change in aggregate wealth change. The second distribution is Lorenz preferred (see Fisher, 2001) if Lorenz curve for the income of agent  $z$ , with trade shock, lies every where above the Lorenz curve for the income of the same with out the shock. This implies:

$$w_t / v_t < w'_t / v'_t \quad \text{Where as } v_t = 1$$

For any variable  $z$ , let  $\hat{z} \equiv dz/z$  denote the percentage change in  $z$  and let a bar over a variable denote its steady state value. It follows from eq. (1.2) that the effects of a shock on the distribution of income depends on  $\text{Sign}(\overline{w_t / v_t})$

where  $\text{Sign}(\overline{w_t / v_t}) = \text{Sign}(\overline{w_t / B_t})$

Thus it implies that any shock that leads to increase (fall) in the ratio of inherited to total income raises (lowers) inequality, given the distributions of bequests (see Fischer, 2001 for more details).

According to the above frame work, if trade liberalization leads to a greater demand in human capital relative to unskilled labor, inequality shall increase further. Tinbergen (1975) suggested that inequality was ultimately determined by the opposing effects that technology (skilled labor demand) and education (skilled labor supply) exerted on the relative wage. With increased openness, if the demand for skilled labor increases and if a developing country fails to match this rise in demand, relative wages of skilled labor will swell and increased inequality is a natural outcome. Where as, if trade leads to an increase in the wages of unskilled labor a more equitable outcome is predicted. Spilimbergo et al (1999) found out that inequality is positively correlated with the interaction effect between openness and human capital. This means if human capital is unequally distributed, then trade would contribute to increase in inequality if it favors skilled or more educated.

#### **4. Inequality as an Outcome of Education Policy:**

Generally in most developing countries human capital is unevenly distributed (Ravallion, 2003). Thomas, Wang and Fan (2000) and Castello and Domenech (2002) have found out that Gini coefficient of distribution of human capital in Sub Saharan Africa and South Asia respectively, is the highest in the world. Berthelemy (2004) came up with the same conclusion not only for Sub Saharan Africa and South Asia but also for Middle East and North Africa (MENA). Further more, according to him, the unequal distribution of income in these regions are due to inequitable education policies of their respective governments who, on average, focus more attention on secondary and tertiary education compared to primary education. Chowdhury (1994) also suggests that there is misallocation of resources by the governments of developing countries that favor higher education to the neglect of primary education.

In many countries a considerable proportion of public expenditures for education goes to middle- and upper-income families, because richer groups are over-represented at all levels of education, and particularly at the university level. Public expenditure per student increases by each level of education. In African countries, public expenditure per student on higher education is 28 (Francophone Africa) and 50 (Anglophone Africa) times that on primary education. Further, only a small number of people benefits from high public expenditure per student in higher education. For the developing countries as a whole, only 7 % of the school-age population enroll in higher education (Mingat and Tan 1985).

One reason for the bias in education policies in these developing countries towards higher education may lie in the belief that elementary education has a very limited direct role in determining growth rates. According to Barro (1999) the rate of economic growth responds more to secondary or higher education levels rather than elementary schooling. For example, in developing countries international trade, which is one of the key determinants of growth, favours either highly qualified university graduates or those who have at least finished their high school. So it is no surprise that in order to run the race to be competitive, many developing countries have a tendency to invest in higher education at the cost of primary education to achieve greater growth.

Here there is an important role for the government to reverse this situation. The government, through investing in education sector and following a balance education policy, can improve the human capital on a more equitable basis. Here a balance education policy would be to give special attention to rural areas/shanty towns where human capital is low as against urban areas/ affluent urban zones (Mamoon, 2005).

Though we have tried to show above how trade can lead to greater inequality among individuals, the basic question remains at large. Why would it that international trade only benefit skilled or more educated in developing countries? This question leads to another equally important question: What are the linkages between trade and labor markets, which can explain such behavior?

## 5. Trade Inequality Inter-linkages and the Heterogenic South:

The rationale for expecting an effect of trade on wage inequality is based on the standard Heckscher-Ohlin-Samuelson (H-O-S) trade model. As Slaughter (2000a) puts it: “... [free] trade lowers the real wage of the scarce factor and raises that of the abundant factor compared to autarky” (p. 131). Assuming that developed countries are generally abundant in skilled labor, increasing trade with developing countries, which are unskilled labor abundant, should raise the wages of skilled workers relative to unskilled in developed countries. Where as, the returns to unskilled labor should increase in developing countries with the opening up of trade with developed countries. Since evidence does not support H-O-S theorem in case of developing countries, what can account for this?

To work through some possibilities, Slaughter (2000b) summarized Stolper-Samuelson intuition with a line of algebra. Suppose a developing country produces  $I$  different tradable goods, each of which requires some combination of  $J$  primary factors and  $I$  intermediate inputs. Then for each sector  $I$ , one can write the “zero profit” condition as

$$P_i^G = \sum_{j \in J} a_{ji} w_j + \sum_{j \in I} b_{ji} P_j^G \quad i = 1 \dots I \quad (4)$$

where  $P_i^G$  is the domestic gross-output price in sector  $i$ ;  $w_j$  is the unit cost of the  $j$ th factor (common across all sectors  $i$ );  $a_{ji}$  is the employment of factor  $j$  per unit of output in sector  $I$ , (which depends on production technology and, assuming technology is not Leontif, factor prices); and  $b_{ji}$  is the amount of intermediate input hired per unit of good  $I$  (which depends on production technology and, assuming technology is not Leontif, input prices). Equation (4) has  $I$  equations, one for each sector, each of which says price just covers cost in equilibrium.

The Stolper Samuelson logic is readily apparent in (4). Domestic product prices  $p_i^G$  depend on both domestic trade barriers and world product prices. Given technology, trade liberalization changes domestic product prices, which in turn changes domestic factor prices.  $w_j$  differ, based on differences in production technology and/or trade barriers.

### 5.1 Protection Effect:

In the simple H-O-S theorem, eq. 4 contains just two equations for two sectors, and just two factors of production. In this basic framework, an explanation for rising inequality after liberalization can be that developing countries protect the unskilled intensive of the two goods, and not the skill intensive prior to liberalization. So after liberalization the producers of unskilled intensive good face increased costs amid more outside competition in the absence of government subsidies. Thus an increased downward pressure is exerted to the wages of the unskilled labor force employed in the production of that unskilled good.

## **5.2 Endowment Effect:**

However, in the real world there are more than two countries, more than two products and sufficiently dissimilar factor endowments across all the countries. A country which is unskilled abundant in a global sense can still experience wage inequality from opening up if that country is skill abundant in the regional sense. There may be a sufficiently wide range of endowments across countries so that different countries make different products – i.e., countries are in different “cones”, with the set of sectors  $I$  in eq. 4. Thus even if the developing countries produce in similar sectors say  $I$  among themselves, they will have different comparative advantages because patterns of protection might not only reflect they are unskilled abundant globally but also they are unskilled abundant regionally. A middle income developing country, which is unskilled abundant relative to developed countries but skill abundant relative to low income developing countries, can have a comparative disadvantage in unskilled labor vis-a vis these low income countries and protection of unskilled labor in these middle income developing economies is a natural outcome. Thus when the tariffs are abolished the unskilled labor see fall in their wages. Leamer (1998) provides supporting evidence by showing that world relative labor endowments are much more finely distributed than the simple skill-abundant or unskilled-abundant dichotomy: Countries like Mexico may very well be globally unskilled abundant yet locally skill abundant, where as countries like China may be unskilled abundant both globally and locally. This explains why unskilled labor is protected in Mexico. Wood (1999) argues that the entry of countries like China, India, Bangladesh, Pakistan and Indonesia in the world markets for goods with a high content of unskilled labor in the mid- 1980s has an important impact on income inequality of middle income countries, particularly those in Latin America. His argument is that increased supply of unskilled labor intensive goods changed the structure of supply of goods in the world market, reducing their prices and the return to factors involved in the production of such goods. This harmed the countries which had some comparative advantage in their production. Vos (2003) noted that Latin American exports lost their competitiveness in the global markets after trade liberalization. As a consequence, these countries are pressured to change their production techniques in a search for comparative advantage in the production of goods which use semi-skilled labor, resulting in an increase in the demand for this type of labor and therefore causing wage dispersion. Though this set of arguments explains inequality in middle income countries, inequality in low income countries remains as a question mark.

## **5.3 Technology Transfer Effect:**

In order to deal with the discrepancy between traditional theory and empirics in low income developing countries (i.e., China and India), the trade and technology nexus has been put to blame. The greater openness intrinsically brings with it a greater inflow of technology that may be skill biased and thus act to increase the demand for skilled labor. The line of argument is that South improves its technological base through learning from the technology available in the North. Learning takes place through technology transfers either through South's efforts to imitate technologies or through importing capital goods available in the North. Where as, in both cases the demand of skill labor is increased. Increasing trade between North and South opens up new opportunities for developing countries' producers to learn Northern technologies. Liberalized trade, on the one hand, allows easier imports of technology

intensive capital goods from north while, on the other hand, it allows Southern firms to export to Northern markets and thus, through competition with Northern firms, learn and imitate this new technology. Since the introduction of new technologies in the South requires skilled labor, demand for this skill group increases and hence, skilled wages may rise.

This explanation modifies the benchmark H-O-S frame work in eq. 4 by allowing the production technique coefficients  $a_{ji}$  to fall (assuming technology improvement) as liberalisation also alters prices  $p_i^G$ . Here the tight link from changes in product prices to changes in factor prices is loosened because technology changes must also be accounted for. Even if liberalisation lowers the domestic price of skill-intensive sectors, liberalisation induces sufficient innovation in these sectors such that their profitability relative to unskill intensive sectors rises and subsequently wage inequality rises, not falls, by the Stolper-Samuelson mechanism of cross-industry shifts in factor demands. Gould et al (2000) and Galor and Moav (2000) suggest that technology-driven labor demand is central to explaining inequality. Gorg and Strobl (2002) also agreed that after liberalisation, purchase of foreign machinery for technological progress in Ghana attributed to the relative demand for skilled labor though they could not find any direct role of technology in the skill composition via export activity.

#### **5.4. International Outsourcing and Technology catch-up Effect:**

Outsourcing means that sometimes a skill labor intensive activity (component) is outsourced to a lower wage economy whereas that low wage economy should be more abundant in both skilled and unskilled labor in absolute terms when compared to other lower wage economies.

It has been widely witnessed that multinational's international outsourcing is increasingly taking place especially in developing countries where semi skilled labor is available for cheaper prices. In the case of India and China, inequality might be partly due to the fact that these countries are able to export skill and semi-skilled intensive goods as a consequence of international outsourcing.

Indian soft ware industry which is concentrated in Bangalore, Mumbai and Pune, is highly export oriented, with export growth rates above 50 percent per year during the last decade of 20<sup>th</sup> century. The current rate is still impressive at 23 percent. Whereas the goods exports have shown an average yearly increase of 7.5 percent between 1997 and 2001, which is quite modest when compared with that of the soft ware industry. According to Tharakan and Beveren (2003:8): *"The reasons for the remarkable success of Indian software exports.....include the rapidly growing demand for software in the countries of the clients, the cost difference between India and the outsourcing countries in employing soft ware professionals..."*. Additionally, this is also at par with Arndt's (2000:3) reasoning for the rational behind international outsourcing: *"The factor intensity of the end product, which has been the focus of traditional trade theory, is just the weighted average of the associated component factor intensities. Evaluating comparative advantage at the level of components is not very different from doing so for products. From the factor-proportions point of view, a capital-rich, high wage country, endowed with plenty of skilled workers, will tend to*

*have comparative advantage in the more capital and skill-intensive components of a product and comparative disadvantage in components relatively heavy inputs of semi-skilled and unskilled labor". It is true that the Indian software exports owe it to international outsourcing than any thing else since the nature of Indian softwares remains to be of routine programming and maintenance services, whereas the final product and package only constitute 3.16 percent share in the total soft ware exports (Nasscom, 2003).*

Since the last decade, China has also been identified as a heaven for international outsourcing for the companies which are searching for semi skilled and skilled factors of production at cheaper prices. Kwan (2002) writes about this phenomenon: *"China has been taking advantage of its cheap and abundant labour to attract direct investment by multinationals, thereby accelerating the pace of industrial development. Exports of manufactured goods have increased sharply in recent years to account for 90 percent of China's overall exports in 2001. Processing trade, which represents roughly half the overall trade of China, has come to play a more important role in the Chinese economy. With its share of the world's manufactured exports rising, China has been widely recognized as the "factory of the world."* While Business Week on January 2002 commented on the impact of Chinese option on Japanese companies: *"Some doomsayers predict the decimation of Japan's high-tech manufacturing base -- and sayonara to all those nice-paying engineering and production jobs -- as cheaper labor, land, and utility costs in China prompt more and more Japanese companies to shutter factories at home.....China could be a "win-win" proposition for Japanese companies. They would save billions in production costs, keep at home high-end research-and-development, design, and other critical jobs, plus plug into a vast consumer market for their goods.....True, big players like NEC and Matsushita already know this and are shifting more and more resources to China ."*

Zhu and Trefler (2003) observed that developing and newly industrialized countries that have experienced the sharpest increases in wage inequalities are those whose export shares have shifted towards more skill intensive goods. They name it as "technology catch-up". This observation, in addition to giving a very convincing reasoning regarding the cause for inequality as a consequence of trade liberalisation, also challenges the core of H-O-S theorem. Along with importing skilled-labor intensive goods, the developing countries also indulge in exporting skill intensive intermediate goods. Zhu and Trefler elaborated this behavior by developing a model in which Southern catch-up causes production of least intensive Northern goods to migrate to South (where they become most skill-intensive Southern goods) - thus raising wage inequality both in the South and the North. The empirical evidence presented in the study suggested that Southern catch-up shifts export shares towards South's most skill intensive goods. Second, the resulting shift in export shares increases the level of wage inequality. Thirdly, Southern catch-up does not directly raise wage inequality. Rather, Southern catch up raises wage inequality only indirectly by raising the export shares of the South's most skill-intensive goods.

## **5.5. Technology Catch-up Effect under Factor Endowment Dynamics:**

One of the implications of trade on inequality, can also be hauled out by furthering the argument of Leamer (1998) of 'global and local differences in skill intensities' and

combining it with the theory of 'technology catch up'. Addendum to Leamer's model can be easily specified by taking into account intra country disparities in skill intensities, in addition to global versus local ones. Please note that intra country disparities capture regional inequalities within a country whereas global and local disparities capture regional inequalities across countries.

Here China and India are the countries which are globally and locally less skill intensive when compared to the medium to high income countries. However within China and India, there are patterns of uneven development because of unequal factor intensities. There are certain regions which are skilled labor intensive while others are low skilled intensive. As we discussed above, the IT sector in India is concentrated in only three locations where skilled labor is available in abundance. These geographic locations are also considered to be relatively high income regions. They are the same regions which also benefit mostly from post liberalization technological change or catch-up, since they are endowed with relatively higher amounts of skill intensive factors of production. Thus in developing countries, post liberalization 'technology catch up', which happens in an uneven manner, because of an uneven domestic factor endowments across various regions, has implications for income inequality.

## **5.6 Familiar Factor Endowments Effect:**

In an attempt to understand inequality in less developed countries, it is also edifying to ask what distributional effects trade carries when these countries are trading with each other? Actually, Bourguignon and Morrison (1999) coined the idea to analyze the effects of international trade on income distribution on the basis of similar factor endowments and levels of development. They noticed that Northern economies trade with each other more than they do with the South. They found out that in North-North trade, increased trade volumes are associated with lower skilled wages and higher unskilled wages.

However, any attempt has yet to be made to analyze the distributional effects of South-South trade. The need for such a study comes from the fact that developing countries lie in different stages of technological catch-up which makes it functional to analyze the dynamics of South-South trade in relation to inequality, while accounting for intra-country disparities. As the developing country moves forward in technology, it naturally indulges in more advanced production patterns and more and more of its trade, especially exports are concentrated in products involving high skilled labor. As one developing country is climbing the technology ladder, the other developing country at a lower stage starts taking over the production activities, which are least skill-intensive in the former as part of its own technology catch-up phenomenon. For example, China has a higher pace of technology catch-up than many of less developed countries in East Asia, Latin America or Sub Saharan Africa. China has built a sound technology base primarily because of its low factor costs. Chinese exports are getting more and more skill intensive as a result. As China advances in technology and produces goods and services involving higher skill intensive labor, there is increasing chance for other developing countries, at lower stage of technology ladder, to exploit this situation by taking-up the production of goods and services which require relatively less skill intensities in factor inputs if produced in China.

Ianchovichina and Walmsley (2003) hinted on the effects of China's technology catch-up on the developing countries of Asia: *As China becomes a more efficient supplier of services or a more efficient producer of high-end manufactures, its comparative advantage will shift into higher end products. This is good news for Vietnam. Indonesia and other developing countries .....Vietnam and Indonesia will benefit the most if China's economy becomes more efficient in the production of high-end manufactures. In contrast, the most favorable outcome for the NIEs is for China to continue to specialize in labor intensive products (p.20).*" From 1991 to 2001, trade between China and Vietnam has grown nearly 100 times, and China is a major investor in Vietnam, which indicates that later country is an important place of outsourcing by Chinese companies. Though Chinese investments are good for the growth of Vietnamese economy, the distributional impact of trade with China might not be as favorable. Jensen and Tarp (2003) found out that in Vietnam, the short to medium term impact on poverty levels among the poor are inversely related to changes in investment expenditure, where as reduction in trade taxes have adverse distributional effects. Though the study captures distributional effects of trade or investment in general for the Vietnamese economy, It should not be improbable to implicate these results for a case when the effects of investment or trade with a major trading partner (i.e., China) is accounted for. Assuming that the same results hold for Chinese investments in Vietnam and also employing 'technology catch-up' and 'international-outsourcing' arguments, one can imply that Vietnamese economy is taking over the products in which its trading partners do not have comparative advantage any more because these products employ relatively less skill intensive inputs, which however are considered as sufficiently skill intensive in Vietnam. Though, this is beneficial for the economy and its growth potential, such a phenomenon also sets out to favor the skill labor in (urban) Vietnam which in turn causes greater inequality.

The purpose of this discussion is to show that trade between countries with similar factor endowments also has implications for inequality, especially in a developing country context. Nevertheless, a more pertinent and comprehensive empirical analysis is desired to demonstrate whether South-South trade can expound trade-inequality liaison in developing countries.

### **5.7 Price Elasticity Effect:**

Rodrik(1997) and Slaughter (2001) identified yet another route through which trade might cause increase in inequality. Rodrik (1997) partly blamed the rise in inequality in the U.S economy on the easing labor demand elasticities. He also emphasized that in imperfectly competitive context, the elasticity of demand for labor is higher with greater openness. Slaughter (2001) pointed out that the link between factor demand elasticities and product market elasticities is directly established through Hicks' well known 'fundamental law of factor demand' which implies that demand for anything is likely to be more elastic, the more elastic is the demand for any further thing which it contributes to produce. Since product market elasticities are likely to rise with trade liberalisation, this implies that, with greater trade openness, we should see an increase in labor demand elasticities as well.

Rodrik (1997) argued that openness could put labor markets under greater pressure because rising elasticities shift the wage or employment incidence of non wage labor



costs towards labor and away from employers. Secondly, higher elasticities trigger more volatile responses of wages and employment to any exogenous shocks (arising from shocks to productivity or to output demand) to labor demand. Also, increase in elasticities leads to the erosion of the bargaining power of labor vis-à-vis capital in sharing abnormal profits.

Using industry-level data disaggregated by states, Hasan, Mitra and Ramaswamy (2003) find a positive impact of trade liberalisation on labor demand elasticities in the Indian manufacturing sector. These elasticities turn out to be negatively related to protection levels that vary across industries and over time. Furthermore, they find that these elasticities are not only higher for Indian states with more flexible regulations; they are also affected largely by trade reforms. Finally, they find that after reforms, volatility in productivity and outputs gets translated into larger wage and employment volatility: a consequence of larger labor demand elasticities. However, Krishna, Mitra and Chinoy (2001) suggest that for Turkey the putative linkage between greater trade openness and labor demand elasticities is somewhat weak. They attributed the weakness to the variety of frictions that affect labor demand decisions of the firm.

### **5.8 Wage Premium Effect:**

Yet another link in trade-inequality argument is developed by employing the concept of efficiency wages/wage premia. Wage premiums represent the portion of worker wages that cannot be explained through worker or firm characteristics, but are attributed to worker industry affiliation. Wage premiums are also associated with higher productivity. Moreover, worker industry affiliation plays a crucial role in explaining the impact of trade reforms on worker wages especially in trade models with imperfect competition and rent sharing. Studies that don't consider industry affiliation miss an important channel through which trade affects wage distribution. In developing countries as well as developed countries, there are restrictions on labor movements, thus again calling for the inclusion of industry affiliation wage-premiums in trade-inequality debate.

According to Pavcnik et al (2003), the effect of trade policy on industry wage premiums has important implications for the wage inequality: “ *Since different industries employ different portions of educated and skilled workers, changes in industry wage premiums translate to changes in the relative incomes of skilled and unskilled workers. If tariff reductions are proportionately larger in sectors employing less-skilled workers, and if these sectors experience a decline in their relative incomes as a result of trade liberalisation, these less-skilled workers will experience a decline in their relative wages. This effect is distinct from the potential effect of trade liberalisation on the economy-wide skill premium. More over, industry wage premiums might vary across workers with different levels of skill or education. For example, the more educated workers may be more (or less) mobile in the labor market, have accumulated more sector specific human capital, or have bargaining power over industry rents. If wage premiums differ across workers with different levels of education, and trade liberalisation increases the industry specific skill premiums, this could provide an additional channel through which the reforms affect wage inequality (p.3).*”

Pavnick et al (2003) is one of the very few studies which have focused on the relationship between trade policy and industry wage premiums. Their results suggest that in Brazil trade liberalization has not lead to lower industry wages in the short run. They conclude that though there is no evidence that the tariff declines worsened inequality through changes in the structure of wage premiums, the industry wage premiums do vary widely across Brazilian manufacturing sector. In addition, they found that the former are smallest in sectors with high shares of unskilled workers suggesting that unskilled workers earn relatively low wages not only because of the growing economy wide skill premium, but also because they are employed disproportionately more in industries with low wage premiums. Nevertheless, Goldberg and Pavcnik (2004) did found a positive link between trade protection and the average wage premia for Colombia. Similarly, Dutta (2003), also conclude that for Indian economy, the impact of trade liberalisation on the inter-industry wage premia is substantial and more protected industries tend to have higher relative wages; whereas, the industries that undergo larger tariff reductions have lower wages relative to other industries.

## **6. Conclusions:**

The paper contributes towards our understanding of processes of globalisation and growth and how they are related with pro poor outcomes. Our discussion suggests that though more trade might be good for the poor in the short term, there is welfare distorting effects which might hamper the positive returns in the long run as international trade does carry unequal effects. Whether inequality matter or not in a pro poor pro growth debate is not an issue for discussion anymore. Inequality certainly matters.

The recent reports of World Bank and United Nations, namely 'Equity and Development, 2006' and 'The Inequality Predicament, 2005' respectively, have tried to press that reducing inequality is central to tackling poverty and bringing about sustainable economic growth.

The 2006 World Bank report concludes that inequality of opportunity, both within and among nations, sustains extreme deprivation, results in wasted human potential and often weakens prospects for overall prosperity and economic growth. Whereas 2005 United Nations report suggests that inequalities between and within countries have accompanied globalization. These inequalities have had negative consequences in many areas, including employment, job security and wages. However, both reports accept that there is still a debate concerning the specific role of liberalization policies in these trends.

In sum, the paper has been an outcome of the recent concern in the echelons of policy making whether the potential benefits of trade liberalization (i.e., increased efficiency and welfare) outweigh the potential costs of trade reforms (i.e., increased inequality, potential 'race to the bottom' in wages). To this effect, this paper tries to positively contribute to the debate by illustrating many conduits through which international trade sets out to favor skilled or affluent in a developing country context and cause inequality. Most of the empirical approaches/methodologies reviewed in our paper are in their primary stages and a lot of empirical evidence is expected to come forth in this respect.

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